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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/056,492	01/17/2002	Gerrit Cornelis Langelair	PHNL 010062	5632
24737 7590 08/03/2009 PHILIPS INTELLECTUAL PROPERTY & STANDARDS P.O. BOX 3001 BRIARCLIFF MANOR, NY 10510				
EXAMINER				
DOAN, TRANG T				
ART UNIT		PAPER NUMBER		
2431				
MAIL DATE		DELIVERY MODE		
08/03/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/056,492

**Applicant(s)**

LANGELAAR, GERRIT CORNELIS

**Examiner**

TRANG DOAN

**Art Unit**

2431

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 May 2009.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-19 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 17 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date \_\_\_\_\_  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. This action is in response to the amendment filed on 05/05/2009.
2. Claims 1-14 and 16-17 have been amended.
3. Claims 1-19 are pending for consideration.

***Continued Examination Under 37 CFR 1.114***

4. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 05/05/2009 has been entered.

***Response to Arguments***

5. Applicant's arguments with respect to claims 1-19 have been considered but are moot in view of the new ground(s) of rejection.

***Specification***

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the "computer readable medium" in claim 9 is not defined in

Applicant's specification. A proper determination of whether the claims fall under a statutory class cannot be made until the term is defined by Applicant.

***Claim Rejections - 35 USC § 101***

6. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. Claims 1-7 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 1-7 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. While the claims recite a series of steps or acts to be performed, a statutory "process" under 35 U.S.C. 101 must (1) be tied to particular machine, or (2) transform underlying subject matter (such as an article or material) to a different state or thing. See page 10 of *In Re Bilski* 88 USPQ2d 1385. The instant claims are neither positively tied to a particular machine that accomplishes the claimed method steps nor transform underlying subject matter, and therefore do not qualify as a statutory process.
8. Claim 8 is rejected under 35 U.S.C. 101 because the claimed invention may be directed to software per se which is directed to non-statutory subject matter. Examiner notes for a system claim, at least one recited element must be hardware; however, the claim limitation such as "modifying the signal samples" may be merely implemented as a software module / application, and thereby the claim may be reasonably interpreted

as being not limited to hardware elements and the claim may be merely directed to software per se as a non-statutory subject matter for a system claim.

9. Claims 9-19 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 9-19 are rejected under 101 as failing to be limited to embodiments which fall within a statutory category. In the specification there is no mention of a computer readable medium (i.e. hard drive, CD, DVD, etc.) that stores the application for embedding a watermark in an information signal as recited in the claims.

***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1-2, 6, 8-10, 14 and 16-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Isnardi et al. (US 6037984) (hereinafter Isnardi).

12. Regarding claim 1, Isnardi discloses a method of embedding a watermark in an information signal which is compressed so as to include first signal samples having a zero value and second signal samples having a non-zero value, the method comprising

modifying the second signal samples in accordance with the watermark to produce a modified signal sample (Isnardi: s33 figure 1 and column 4 lines 20-34: The watermark mask (118) selects certain ones of the quantized DCT coefficients and set the value of each selected coefficient to zero), wherein the act of modifying is applied to at least one of the first and second signal sample only if the modified signal sample equals zero (Isnardi: column 2 lines 20-28: DCT coefficients that are then replaced by zero values to form a masked array...watermark inserter that replaces the zero valued coefficients with predefined watermark coefficients to form a watermarked array).

13. Regarding claim 2, Isnardi further discloses wherein the second signal samples qualified for modification have the smallest value other than zero (Isnardi: column 5 lines 55-62).

14. Regarding claim 6, Isnardi further discloses wherein the information signal is divided into sections and the first and second signal samples of a section have been quantized in accordance with a quantizer step scale, the method including controlling a position of the second signal samples qualified for modification within a section in dependence upon said quantizer step scale (Isnardi: see figure 1 and column 2 lines 15-31).

15. Regarding claim 8, this claim has limitations that is similar to those of claim 8, thus it is rejected with the same rationale applied against claim 8 above.

16. Regarding claim 9, this claim has limitations that is similar to those of claim 1, thus it is rejected with the same rationale applied against claim 1 above.

17. Regarding claim 10, this claim has limitation that is similar to those of claim 2, thus it is rejected with the same rationale applied against claim 2 above.

18. Regarding claim 14, this claim has limitations that is similar to those of claim 6, thus it is rejected with the same rationale applied against claim 6 above.

19. Regarding claim 16, Isnardi further discloses wherein the watermark is represented by DCT coefficients and the portion configured to modify the first and second signal samples is configured to modify the second signal samples in accordance with a corresponding sign of the watermark DCT coefficients (Isnardi: see figure 1 and Abstract Section).

20. Regarding claim 17, Isnardi further discloses wherein the signal samples are represented by DCT coefficients and the portion configured to modify the second signal samples is configured to modify a range of signal sample DCT coefficients in accordance with the corresponding sign of the watermark DCT coefficients (Isnardi: see figure 1 and Abstract Section).

21. Regarding claim 18, Isnardi further discloses wherein the watermark is represented by DCT coefficients and the portion configured to modify the signal samples is configured to modify the signal samples in accordance with only a plurality of most significant DCT coefficients (Isnardi: see figure 1 and Abstract Section).

22. Claims 3-5, 7, 11-13, 15 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isnardi, and further in view of Hartung et al. (reference U: Digital Watermarking of MPEG-2 Coded Video In The Bitstream Domain) (hereinafter Hartung).

23. Regarding claim 3, Isnardi does not explicitly disclose wherein the first and second signal samples have been quantized with a quantizer step size, and the second signal samples qualified for modification are signal samples being quantized with a step size, which is less than a predetermined threshold. Hartung disclose wherein the first and second signal samples have been quantized with a quantizer step size, and the first and second signal samples qualified for modification are signal samples being quantized with a step size, which is less than a predetermined threshold (Hartung: page 2623 "we only transmit the watermarked coefficient if  $n_1 \leq n_0$ "). Therefore, it would have been obvious to one ordinary skill in the art to apply the teaching of the predetermined threshold of Hartung into the method of Isnardi so that in areas where only low spatial frequencies are on the image, also the watermark can contain only low-frequency components. This implies with human vision: more watermark signal energy is embedded where it is less visible (Hartung: page 2623 column 2).



24. Regarding claim 4, Isnardi does not explicitly disclose wherein the information signal is divided into sections and the number of the second signal samples qualified for modification is limited to a predetermined maximum per section. Hartung discloses wherein the information signal is divided into sections and the number of the first and second signal samples qualified for modification is limited to a predetermined maximum per section (Hartung: page 2623 columns 1 and 2). Therefore, it would have been obvious to one ordinary skill in the art to apply the teaching of the predetermined threshold of Hartung into the method of Isnardi so that in areas where only low spatial frequencies are on the image, also the watermark can contain only low-frequency components. This implies with human vision: more watermark signal energy is embedded where it is less visible (Hartung: page 2623 column 2).

25. Regarding claim 5, Isnardi as modified further discloses wherein the first and second signal samples of a section have been quantized in accordance with a quantizer step scale, the method including controlling said maximum of modified signal samples in dependence upon said quantizer step scale (Isnardi: see figure 1 and Abstract Section).

26. Regarding claim 7, Isnardi does explicitly disclose decoding the variable-length code words into respective first and second signal samples prior to said modifying; merging the modified signal sample with succeeding or preceding first signal samples to obtain a new run of first signal samples, and encoding the new run of first and second

signal samples and a subsequent or preceding further signal sample into a new variable-length code word. Hartung discloses decoding the variable-length code words into respective first and second signal samples prior to said modifying act; merging the modified signal sample with succeeding or preceding first signal samples to obtain a new run of first signal samples, and encoding the new run of first and second signal samples and a subsequent or preceding further signal sample into a new variable-length code word (Hartung: pages 2623-2624). Therefore, it would have been obvious to one ordinary skill in the art to apply the teaching of merging the modified signal sample with succeeding or preceding first signal samples to obtain a new run of first signal samples of Hartung into the method of Isnardi to eliminate a degradation occurs in the video sequence, it may propagate in time, and even spread in space. Furthermore, since all video frames are watermarked, watermarks from previous frames and from the current frame may accumulate in the current frame and result in visual distortion, if no countermeasures are taken (Hartung: page 2623 column 2).

27. Regarding claim 11, this claim has limitation that is similar to those of claim 3, thus it is rejected with the same rationale applied against claim 3 above.

28. Regarding claim 12, this claim has limitation that is similar to those of claim 4, thus it is rejected with the same rationale applied against claim 4 above.

29. Regarding claim 13, this claim has limitation that is similar to those of claim 5, thus it is rejected with the same rationale applied against claim 5 above.

30. Regarding claim 15, this claim has limitations that is similar to those of claim 7, thus it is rejected with the same rationale applied against claim 7 above.

31. Regarding claim 19, Isnardi does not explicitly disclose wherein the information signal contains field-coded DCT blocks and frame-coded DCT blocks, and wherein the portion configured to modify signal samples is configured to modify field-coded DCT blocks with a first watermark and is configured to modify frame-coded DCT blocks with a second watermark. Hartung discloses wherein the information signal contains field-coded DCT blocks and frame-coded DCT blocks, and wherein the portion configured to modify signal samples is configured to modify field-coded DCT blocks with a first watermark and is configured to modify frame-coded DCT blocks with a second watermark (Hartung: page 2624 column 1). Therefore, it would have been obvious to one ordinary skill in the art to apply the teaching of modifying the information signal of Hartung into the method of Isnardi to eliminate degradation occurs in the video sequence, it may propagate in time, and even spread in space. Furthermore, since all video frames are watermarked, watermarks from previous frames and from the current frame may accumulate in the current frame and result in visual distortion, if no countermeasures are taken (Hartung: page 2623 column 2).

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TRANG DOAN whose telephone number is (571)272-0740. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William R. Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Trang Doan/  
Examiner, Art Unit 2431

/Christopher A. Revak/  
Primary Examiner, Art Unit 2431